



Original Research Article

Histopathological analysis of soft tissue tumours in a tertiary care hospital

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ABSTRACT

Soft tissue tumours are diverse lesions arising from mesenchymal tissues of the body and present with overlapping clinical and radiological features. Histopathological examination is necessary to arrive at a correct diagnosis. The main objective of the present study is to analyse the trend and pattern of soft tissue lesions in different age groups and sex.

Materials and Methods: This is a prospective study carried out in all the specimens which were clinically suspected as soft tissue lesion. The formalin fixed specimens are processed and examined under the microscope.

Results: Out of 200 cases examined 97% are benign and 3% are malignant tumours. Males outnumbered females with 3:1 male to female ratio. More number of cases were seen in 31-40 years of age group (30%) followed by 21-30 years (27%). In the benign category, majority were lipomatous tumours (87.6%) followed by the blood vessel tumours (7.2%). Malignant tumours were seen only in males.

Conclusion: Histopathology is the gold standard tool for diagnosis and it needs thorough and very careful examination to arrive at an accurate diagnosis.

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1. Introduction

Soft tissue tumours are mesenchymal neoplasms arising from extra skeletal tissues of the body including adipose tissue, nervous tissue, blood vessels, muscle and fibrous tissues.¹⁻³ They are diverse neoplasms with overlapping clinical and radiological features.^{1,2} Hence histopathology is needed for appropriate diagnosis. Soft tissue sarcomas are fourth most common malignancies in children and account for 15% of all paediatric neoplasms.⁵ The incidence of these tumours is 1.4 per 1,00,000 population.^{2,4} They are classified as benign, malignant and intermediate category which show locally aggressive behaviour.^{2,3} Benign tumours outnumber the malignant ones and estimated to be around 3000/million while malignant tumours are around 30/million.¹ Males are more commonly affected and the commonest location is extremities followed by head & region and abdominal cavity.¹⁻³ Diagnostic accuracy is

increased by using other diagnostic methods like special stains, immunohistochemistry and molecular studies.^{3,4}

2. Materials and Methods

This prospective study was conducted in the pathology department, at our tertiary care centre, Bangalore, between Jan '18 to June' 18. The specimens which were sent with a clinical diagnosis/suspicion of soft tissue lesion were included in the study. 10% formalin was used for fixation of the tissues and further processed by paraffin embedding technique. Relevant clinical history, ultrasound/ CT findings were retrieved from the patient's record. Hematoxylin & eosin stained sections were evaluated carefully. Wherever necessary special stains were done. WHO classification of soft tissue tumours 2013 was used for categorisation of soft tissue tumours.

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3. Results

A total of 200 cases were included in this study of which benign tumours consisted of 194 cases (97%) and malignant cases 6 (3%). The age range was from 6 yrs to 65 yrs. Majority of the cases were found in the age group of 31-40 years, 60 cases (30%) followed by 21-30 years, 54 cases (27%) (Table 1). Very less number of cases were seen in the extremes of age group. Males outnumbered females with a 3:1 male to female ratio (Table 2).

Table 1: Age wise distribution

Age in yrs	No of cases(n=200)	Percentage
1-10	06	3%
11-20	24	12%
21-30	54	27%
31-40	60	30%
41-50	42	21%
51-60	10	5%
61-70	04	2%

Table 2: Sex wise distribution

Sex of the patient	No of cases	Percentage
Males	150	75%
Females	50	25%
Total	200	100%

Out of 194 cases studied in the benign category, the predominant lesions were lipomatous tumours, constitute d 170 cases (87.6%). The second most common soft tissue tumours and the second most common benign tumours were the blood vessel tumours which accounted for 14 cases (7.2%). Benign fibrous histiocytoma and hamartoma each of 2 cases (1.03%). Neurofibroma, tenosynovial giant cell tumor, nonossifying fibroma, panniculites, fibroxanthoma and lymphangioma each constituted 1 case (0.5%) (Table 3). Benign lesions predominantly seen in male patients.

Benign fibrous histiocytoma shows spindle cells with scant cytoplasm and the nuclei are thin elongated with pointed ends, arranged in a vague storiform pattern and admixed with varying numbers of inflammatory cells, foam cells and siderophages (Figure 1). Lymphangioma exhibits large lymphatic channels lined by endothelial cells seen in a connective tissue stroma. Microscopy of giant cell tumour of tendon sheath shows variable admixture of osteoclast like giant cells and mononuclear cells in dense collagenous stroma (Figure 2). Non ossifying fibroma shows fibroblasts arranged in storiform pattern with scattered histiocytes and hemosiderin (Figure 3). Rhabdomyosarcoma presents as round to spindle cells with scant cytoplasm and characteristic strap cells seen in a myxoid background (Figure 4). Alveolar soft part sarcoma consists of large polygonal cells with granular eosinophilic

cytoplasm and prominent nucleoli arranged in well-defined nests separated by fibrous stroma (Figure 6).

Table 3: Distribution of benign lesions

Diagnosis	No of cases	Percentage
Lipoma	170	87.6%
Hemangioma	14	7.2%
Benign fibrous histiocytoma	02	1%
Neurofibroma	01	0.5%
Hamartoma	02	1%
Tenosynovial giant cell tumour	01	0.5%
Non ossifying fibroma	01	0.5%
Panniculitis	01	0.5%
Fibroxanthoma	01	0.5%
Lymphangioma	01	0.5%

Under malignant category 2 cases (1%) of each rhabdomyosarcoma & malignant fibrous histiocytoma and 1 case (0.5%) each of alveolar soft part sarcoma and synovial sarcoma were reported. All the malignant cases were seen in the males (Tables 4 and 5).

Table 4: Distribution of malignant lesions

Diagnosis	No of cases	Percentage
Alveolar soft part sarcoma	01	0.5%
Rhabdomyosarcoma	02	1%
Malignant fibrous histiocytoma	02	1%
Synovial sarcoma	01	0.5%

Table 5: Histological types of soft tissue tumors

Type of tumour	No of cases (n=200)
Lipomatous tumours	170
Tumours of blood vessels	14
Tumours of lymph vessels	1
Peripheral nerve sheath tumour	1
Fibroblastic tumour	2
Fibrous tumours	2
Fibrohistiocytic tumours	1
Tumours of uncertain type	4
Tumours of synovial sheath	1
Tumours of skeletal muscle	2
Miscellaneous	2

4. Discussion

The soft tissue tumours are lesions of extraskeletal tissues of the body and 40% of them arise from lower extremity especially in thigh followed by trunk & retroperitoneum 30%, Upper extremity 20% and head & neck region 10%.⁵ They are heterogenous group of diseases which share overlapping clinical, radiological features and show close histopathological similarities which requires careful

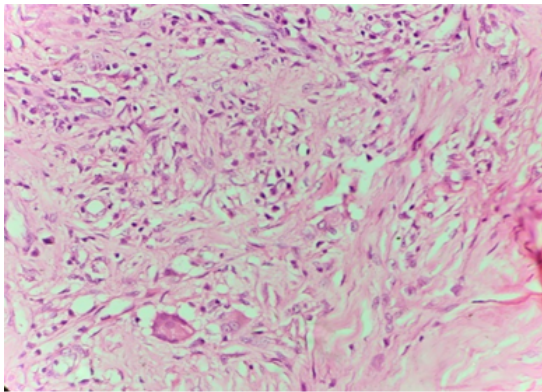


Fig. 1: Benign Fibrous Histiocytoma (10x,H&E)

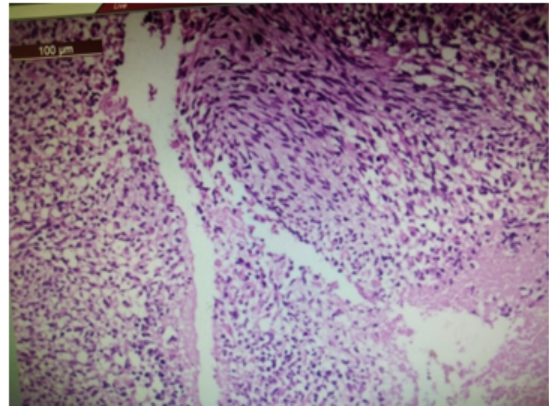


Fig. 4: Rhabdomyosarcoma (10x, H&E)

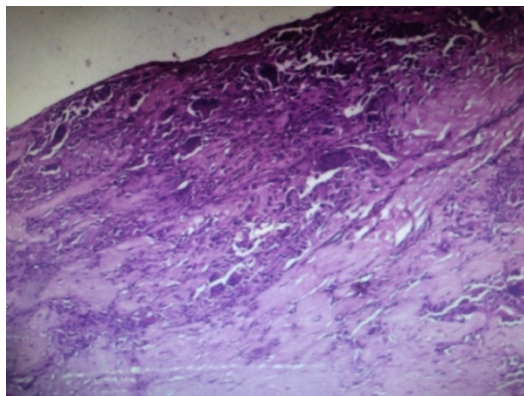


Fig. 2: GCT of tendon sheath(10x,H&E)

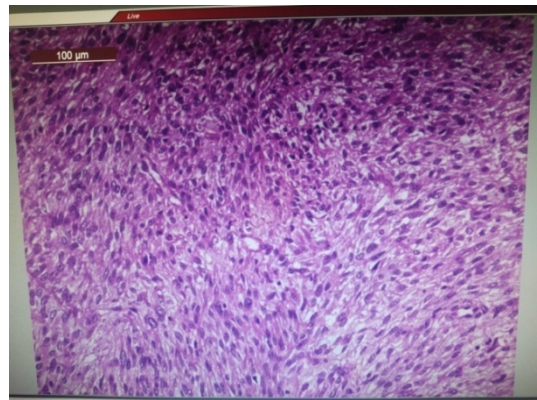


Fig. 5: Malignant Fibrous Histiocytoma (10x, H&E)

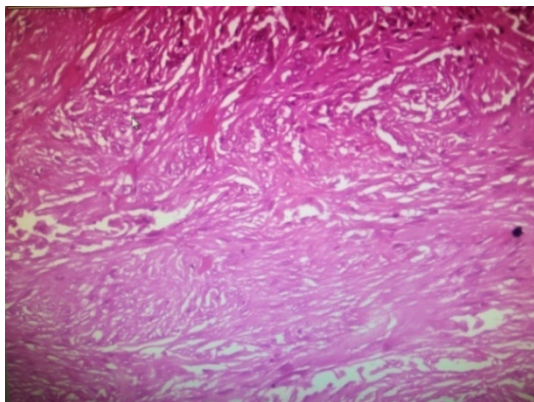


Fig. 3: Nonossifying fibroma (10x,H&E)

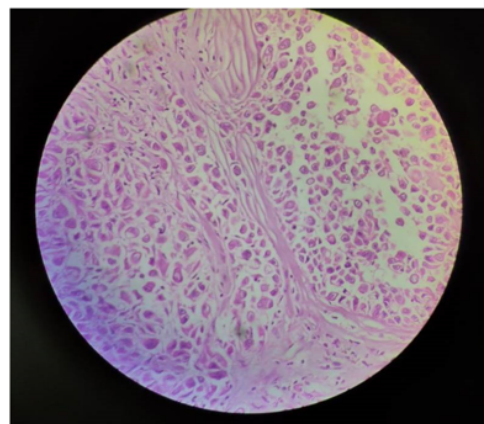


Fig. 6: Alveolar soft part sarcoma (10x, H&E)

microscopic examination to arrive at an accurate diagnosis.

In our study there were a total of 200 cases analysed. Out of these 194 cases (97%) were benign tumours and 6 (3%) were malignant tumours. This is in concordance with the studies by Narayanan et al,³ Jain P⁶ et al and Jain S⁴ et al with the incidence rate 93.8%, 90.6% and 89.7% respectively. The incidence of malignant lesions were less in our study 6 cases (3%) which is comparable to Narayanan et al³ (2.8%), Jain P⁶ et al (9.4%).

Sajjad M⁵ et al and Peterson⁷ et al showed slightly higher incidence of malignant lesions, 34.08% and 49% respectively. Since the benign lesions do not cause much clinical symptoms or rapid growth patients do not approach clinicians and for the same reason all the benign tumours are not surgically removed. This may cause difficulty in calculating the accurate incidence.

Male patients outnumbered females with a 3:1 male to female ratio in our study. Similar findings were observed in the studies conducted by Harpal¹ et al, Jemal⁸ et al, Mirza⁹ et al with a 1.1:1, 1.2:1 and 1.1:1 male to female ratio respectively.

In our study more number of cases were seen between 31-40 years (30%) followed by 21-30 years (27%). This is comparable with Agaravat¹⁰ et al, Baig MA¹¹ et al and Jobanputra² et al which showed higher incidence in 31-40 yrs. The study of Jain⁶ et al and Jain S⁴ et al showed maximum cases in 51-60 yrs and 21-30 yrs respectively.

Lipomatous tumours were the predominant lesions in benign category in the present study, constituted 170 cases (87.6%). The second most common soft tissue tumours and the second most common benign tumours observed were the blood vessel tumours which accounted for 14 cases (7.2%). All the 6 cases of malignancy were seen in the males of which 2 cases (1%) each of rhabdomyosarcoma & malignant fibrous histiocytoma and 1 case (0.5%) each of alveolar soft part sarcoma and synovial sarcoma.

The overall predominant soft tissue tumours observed in our study were lipomatous tumours followed by vascular tumours with the incidence rate of 85% and 7% respectively. This observation is comparable to various other studies like Agaravat et al, Harpal et al, Jain P⁶ et al and Jain S⁴ et al with the incidence rate of adipocytic tumours to be 33%, 46%, 50% and 47.4% respectively.

5. Conclusion

Soft tissue tumours are diverse neoplasms with different prognostic implications. Most of the tumours can be diagnosed by light microscopy which needs thorough and

very careful examination to arrive at an accurate diagnosis. Hence histopathology is the gold standard tool for diagnosis. Diagnostic accuracy can be increased by using ancillary techniques wherever it is necessary.

6. Source of funding

None.

7. Conflict of interest

None.

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